

Serial No.: 10/623,137

- 2 -

Art Unit: 1723

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended) A system for blending at least two materials, comprising:
  - a blend chamber that includes
    - a first inlet to receive a first material, the first inlet being connected to a first valve to control an amount of the first material received at the first inlet; and
    - a second inlet to receive a second material, the second inlet being connected to a second valve to control an amount of the second material received at the second inlet;
    - a recirculation line connected to the blend chamber to receive a mixture of the first material and the second material and provide the mixture of the first material and the second material back to the blend chamber;
    - a sensor, disposed in the recirculation line, to detect an amount of the second material mixed in the mixture of the first material and the second material;
    - a drain port fluidly connected to the blend chamber;
    - an outlet fluidly connected to the blend chamber to dispense the mixture having a desired concentration of the second material in the mixture; and
    - a controller, connected to the sensor, the first valve, the second valve, the drain port, and the outlet, ~~responsive to the detected amount of the second material in the mixture~~ configured to provide:
      - a control signal to the first valve to fill the blend chamber to a predetermined volume with the first material at the first inlet,
      - a control signal to the second valve, responsive to the blend chamber achieving the predetermined volume, to control the amount of the second material received at the second inlet to achieve the desired concentration of the second material in the mixture,

Serial No.: 10/623,137

- 3 -

Art Unit: 1723

a control signal, responsive to the detected amount of the second material in the mixture being greater than the desired concentration, to dispense a portion of the mixture out the drain port, and

a control signal, responsive to the detected amount of the second material in the mixture being the desired concentration, to dispense a bulk of the mixture at the desired concentration of the second material in the mixture from the blend chamber through the outlet.

2. (Previously presented) The system of claim 1, wherein the recirculation line includes:  
an inlet connected to the blend chamber to receive the mixture of the first material and the second material;

an outlet connected to the blend chamber to provide the mixture of the first material and the second material back to the blend chamber; and

a pump, to receive the mixture of the first material and the second material from the inlet of the recirculation line and pump the mixture to the outlet of the recirculation line.

3. (Previously presented) The system of claim 2, wherein the outlet is connected to the recirculation line and disposed between the pump and the outlet of the recirculation line, to provide the mixture to a tool.

4. (Original) The system of claim 3, wherein the sensor is a conductivity sensor.

5. (Original) The system of claim 1, wherein the sensor is a conductivity sensor.

6. (Previously presented) The system of claim 1, wherein the outlet is connected to the recirculation line, to provide the mixture to a tool.

7. (Previously presented) A method of blending at least two materials to a desired concentration, comprising acts of:

providing a first material in bulk to a blend chamber;

Serial No.: 10/623,137

- 4 -

Art Unit: 1723

providing, subsequent to the act of providing the first material in bulk, a flow of a second material to the blend chamber through a second inlet;

mixing the flow of the second material into the first material in the blend chamber to create a mixture;

recirculating the mixture in the blend chamber;

measuring a characteristic of the mixture during the act of recirculating;

adjusting the flow of the second material to the blend chamber to attain the desired concentration; and

dispensing a bulk of the mixture at the desired concentration.

8. (Original) The method of claim 7, wherein the act of measuring a characteristic of the mixture comprises sensing a characteristic indicative of concentration.

9. (Previously presented) The method of claim 7, wherein the act of providing the first and second materials occurs without measuring a concentration of the first and second materials.

10. (Previously presented) The method of claim 7, wherein the act of providing the first and second materials occurs without measuring a mass flow rate of the first and second materials.

11. (Original) The method of claim 7, further comprising draining a portion of an out of specification blend and leaving the remaining portion of the out of specification blend in the blend chamber.

12. (Original) The method of claim 11, further comprising providing an additional amount of the first and second materials.

13-15. (Canceled)

Serial No.: 10/623,137

- 5 -

Art Unit: 1723

16. (Previously presented) The system of claim 1, wherein the controller further provides a control signal to the second valve to control the amount of the second material received at the second inlet to achieve a first intermediate concentration;

provides a control signal to the second valve to remain closed for a first predetermined time period; and

provides a control signal to the second valve to adjust the amount of the second material received at the second inlet to achieve a second intermediate concentration of the second material in the mixture.

17. (Previously presented) The system of claim 16, wherein the controller further provides a control signal to the second valve to remain closed for a second predetermined time period; and provides a control signal to the second valve to adjust the amount of the second material received at the second inlet to achieve a third intermediate concentration of the second material in the mixture.

18. (Previously presented) The method of claim 7, further comprising:  
interrupting the flow of the second material to the blend chamber for a first predetermined time period; and  
adjusting the flow of the second material to the blend chamber to attain an intermediate concentration.

19. (Previously presented) The method of claim 18, further comprising:  
interrupting the flow of the second material to the blend chamber for a second predetermined time period; and  
adjusting the flow of the second material to the blend chamber to attain another intermediate concentration.

20-22. (Canceled)

23. (Currently amended) A system for blending at least two components, comprising:

Serial No.: 10/623,137

- 6 -

Art Unit: 1723

a blend chamber having:

- a first inlet for receiving a first component, and
- a second inlet for receiving a second component;
- a recirculation line having an inlet and an outlet fluidly coupled to the blend chamber;
- means for detecting a concentration of the second component in a mixture of the first and second components in the recirculation line;
- means for adjusting the rate at which the second component is added to the blend chamber;
- means for draining a portion of an out of specification mixture from the blend chamber upon a determination that the detected concentration of the second component is out of specification;
- means for correcting a remaining portion of the out of specification mixture in the blend chamber; and
- means for dispensing a batch of the mixture at a final blend value from the blend chamber.

24. (Previously presented) The system of claim 23, wherein the rate is adjusted to achieve an intermediate concentration of the mixture, and further adjusted to achieve another intermediate concentration of the mixture.

25. (Canceled)

26. (Currently amended) The system of claim ~~[[25]]~~ 23, wherein the means for correcting the remaining portion of the out of specification mixture comprises means for adding the first component to the blend chamber to allow the mixture to reach a concentration lower than a concentration of the out of specification mixture.

27. (Previously presented) The system of claim 23, wherein the means for dispensing a batch of the mixture at the final blend value comprises an outlet for delivering the mixture to a tool.

Serial No.: 10/623,137

- 7 -

Art Unit: 1723

28. (Previously presented) The system of claim 24, wherein the rate is adjusted in response to the means for analyzing the mixture registering increasing concentration values of the second component in the mixture.

29. (Previously presented) The system of claim 17, wherein the amount of the second material received at the second inlet is adjusted based on predetermined increases in concentration of the second material in the mixture.

30. (Previously presented) The method of claim 19, wherein the rate adjustments correspond to concentration increases of the second material in the mixture.